Transorbital ventricular puncture for emergency ventricular decompression

Technical note

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Various methods have been used for rapid performance of ventricular drainage in emergency situations to relieve high intracranial intraventricular pressure in hydrocephalic patients. In 1973, Rifkinson, et al., adapted a No. 18 needle to drill the vault in the forehead. Two years later, Verdura, et al., reported the use of a battery-operated compact hand drill to permit rapid entry into the frontal horn.

In our service, recalling the technique described by Freeman and Watts for transorbital lobotomy, in very ill patients we were able to penetrate the orbital roof with a No. 18 needle. By this method, the frontal horn of the lateral ventricle is reached rapidly and can be easily drained.

Technique

The skin and conjunctiva in the orbital area are prepared with antiseptic solution. The superior eyelid is retracted forward and upward. The ocular globe is displaced carefully downward. The tip of a No. 18 needle is placed in the rostral third of the roof of the orbit, 1 cm behind the superciliary arch (Fig. 1). By means of careful pressure in children and gentle tapping in the adult, the bone plate is traversed. Posteriorly, the needle is directed toward the coronal suture and the midline, and is introduced to a depth of approximately 3 cm. The needle is advanced slowly until ventricular fluid is obtained.

This procedure is recommended as an emergency measure in deteriorating comatose patients with
neurological signs of cerebral or cerebellar herniation in which there is a high suspicion of hydrocephalus, and when the usual drill techniques are not readily available.

References


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